

ABSTRACT OF THE DISCLOSURE**5 NiAl-BASED APPROACH FOR ROCKET COMBUSTION CHAMBERS**

A multi-layered component, such as a rocket engine combustion chamber, includes NiAl or NiAl-based alloy as a structural layer on the “hot” side of the component. A second structural layer is formed of material selected from Ni-based superalloys, Co-based alloys,
10 Fe-based alloys, Cu, and Cu-based alloys. The second material is more ductile than the NiAl and imparts increased toughness to the component. The second material is selected to enhance one or more predetermined physical properties of the component. Additional structural layers may be included with the additional material(s) being selected for their impact on physical properties of the component.

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